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AMSAT NEWS SERVICE
ANS-029

ANS is a free, weekly, news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

Please send any amateur satellite news or reports to:
ans-editor@amsat.org

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ANS-029 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 029.01
>From AMSAT HQ SILVER SPRING, MD.
January 29, 2012
To All RADIO AMATEURS
BID: $ANS-029.01

January 30 Announcement Date for NASA ELaNa CubeSat Launch Initiative

AMSAT-NA is waiting to hear whether our proposal to include the Fox-1 cubesat in NASA's "Educational Launch of NanoSat" (ELaNa) program has been accepted. NASA selects projects that they deem to have merit in support of their strategic and educational goals. Projects that are selected will be able to enter into a collaboration agreement where NASA will cover the integration and launch costs of the satellite.

AMSAT, working with ARRL, highlighted the educational merit of the project including the incorporation of Fox-1 into the ARRL Teacher Institute seminars. ARRL also provided a letter of support for the project that was a key component of our proposal.

The Clay Center for Science and Technology at the Dexter and Southfield schools in Brookline, MA, also provided a letter of support that was an important part of our proposal. The Clay Center noted that they use AMSAT satellites such as ARISSat-1 in their educational activities for K-12 students and that they look forward to

making use of Fox-1.

The completed proposal, at 159 total pages, required a significant effort that was all done by volunteers. NASA will select from all of the submissions and announce the winning projects by January 30, 2012.

[ANS thanks the Fox-1 Project Team for the above information]

ARISSat-1/KEDR Legacy Lives on in the DK3WN SatBlog

Tune your browser to http://www.dk3wn.info/p/?p=25476 to enjoy a unique ARISSat-1 sound archive on-line.

Thanks to Mike Rupprecht, DK3WN, ARISSat-1's identifier message, "Hi this is ARISSat-1 Amateur Radio Satellite RS01S", has been recorded and archived on the web. The DK3WN SatBlog has posted the ID, the female voice spoken telemetry, male voice spoken telemetry.

Also, 25 audio files of the messages by children of countries around the world transmitted by ARISSat-1 along with the translated sentence are included. The "secret word" appears in the last of the message of each country.

ARISSat-1's international greetings are in Japanese, Bengali, Flemish, Chinese, Dutch, Spanish (Spain), Spanish (South America), Spanish (Puerto Rico), Afrikaans, Portuguese, French, English (UK), English (Canada), English (USA), German, Swedish, Catalonian, Nepalese, Russian, and Hebrew. The message is displayed in its native tongue and an English translation.

[ANS thanks Mike Rupprecht, DK3WN and Mineo Wakita, JE9PEL for the above information]

Fifty Years: OSCAR-1 Celebration Continues

The ARRL has posted a new, highly informative article on how the world's first Amateur Radio satellite, OSCAR-1, came to be designed, built and launched.

The ARRL's Space Communication web page has an English translation of, "OSCAR-1 Launched 50 Years Ago", written by Andreas Bilsing, DL2LUX. This article was first published in the German magazine Funkamateur. It is reprinted with their permission. OSCAR-1 was launched just over 50 years ago, on December 12, 1961.

See the ARRL Space Communication web page at:
http://www.arrl.org/space-communication

A direct link the the article in English is:
http://www.arrl.org/files/file/Technology/Bilsing.pdf

Andreas lives in Leipzig, Germany. He is a member of AMSAT-DL and has written articles in the AMSAT-DL Journal and Funkamateur. He also wrote the first German Summits on the Air (SOTA) manual. His other interests include home brewing, qrp, digimodes and satellites.

Licensed since 1975 at age 16 he has held prior calls of DM4MTG, DM2FAG, Y26AG, and Y23AM. He holds degrees in energy process engineering and automation which is applies to his work in an engineering company as project manager in natural gas, responsible for instrumentation of gas plants, pipelines and underground gas storage.

Andreas says the view from his shack includes Leipzig's St. Thomas church where the famous composer J. S. Bach worked.

The AMSAT 2011 Space Symposium in San Jose, California featured Lance Ginner, K6GSJ, one of the OSCAR-1 developers as our banquet speaker. Lance's talk can be viewed at: http://youtu.be/EWSCCZY1FgQ.

MilSatMagazine.com mentions OSCAR-1 in an article about early U.S. Recon Satellites in the October 2011 issue:
http://www.milsatmagazine.com/2011/MSM_Oct_2011.pdf
OSCAR-1 rode to orbit with the Discoverer-36 satellite.

A copy of the OSCAR 1 slides used at AMSAT's display during Space Day at the National Air and Space Museum in Washington, D.C. can be downloaded from AMSAT-NA at:
http://tinyurl.com/OSCAR-1-Presentation (pdf ~5MB)

[ANS thanks the ARRL, AMSAT, Andreas Bilsing DL2LUX and amsat-bb for the above information]

Chibis-M RS-39 Deployed - Signals Heard Intermittently

The Chibis-M satellite, RS-39, was deployed from the Progress M-13M cargo ship into a 500 km orbit on January 24, as planned. RS-39 has CW beacons on 435.315 and 435.215 MHz.

The RS-39 team requested support from amateur radio operators for any initial reception reports of Chibis-M as its first orbits were outside of the range of the satellite's control stations. Reception reports are being received by e-mail to:
amateur-rs39@chibis.cosmos.ru. Each report will be confirmed by a special QSL card.

Shortly after RS-39 was deployed reception reports posted on amsat-bb said strong signals initially were heard in India (VU3TYG, VU2WMY), United States (KB1PVH), Australia (VK5DG), Argentina (LU4EOU), and central Europe (Jakub Hruska).

Nitin, VU3TYG posted a short video of receiving RS-39 at his QTH:
http://www.youtube.com/watch?v=l4db7uToltI

On later orbits VKFAK reported the telemetry showed a drop in voltage aboard RS-39 to 2.8 volts in USUN telemetry field. At this time a report from VU2WMY said the CW signal was only heard briefly at AOS. RS-39 was not heard on a morning pass on January 25 over North America from a report by W1MSG.

Google translation of http://chibis.cosmos.ru/ reports that the control station switched off RS-39 after initial testing was completed on the fourth orbit to save battery power. When testing resumes plans included calibration of the magnetometer, calibration of solar sensors, and testing the three-axis attitude determination algorithm using the magnetometer and sun sensor. Later postings from the con-

trol station show they are switching RS-39 on and off at various times.

Mike Rupprecht DK3WN has made available software to decode the RS-39 telemetry. A description of the program is posted by AMSAT-UK at: http://www.uk.amsat.org/4029. This page includes links to download the software. Mike has created telemetry decoder software for several satellites. These can be found DK3WN satellite software page: http://tinyurl.com/DK3WN-Sat-Software (in Google English).

Amateur stations tracking RS-39 reported that elements associated International launch number 11062C, catalog 38051 correlated with RS-39. Other stations reported success using the tracking elements for the Progress M-13M cargo ship, however the orbits between RS-39 and Progress were beginning to separate.

Web tracking of Chibis-M, RS-39 can found at this page: http://chibis.cosmos.ru/cyclogr/prepare1/google/index.html

Keplerian elements can be found by clicking the two small gears icon in the upper left corner of the map; then select Satellites from the menu that pops up; then select RS-39.

A video from Roscosmos showing the RS-39 deploymnet from the Progress M-13M cargo ship an be found here: http://www.roscosmos.ru/main.php?id=216

[ANS thanks the reporting stations for their signal reports and the above information]

VEGA Preparations Proceeding Toward February 9 Launch

Space-Travel.com published an article reporting that final checkout of Europe's new Vega launcher has been completed marking another milestone towards its February 9 maiden flight from Europe's Spaceport in Kourou, French Guiana.

All four stages have undergone final acceptance, including the testing of the avionics, guidance, telemetry, propulsion, separation pyrotechnics and safety systems. These steps culminated on 13 January with Vega's 'synthesis control checks', where all systems were put into launch mode for the vehicle's final acceptance. This included pressurizing the AVUM propulsion systems that actuate the thruster valves. The rocket's elements were switched on from the control bench to simulate the launch countdown. The onboard software then took over and simulated the different stages of a flight. The interfaces between the vehicle and the control bench were also tested. The test review confirmed that everything ran as expected and that the launcher is ready for flight.

Vega is designed to launch payload masses ranging from 300 kg to 2500 kg, depending on the type and altitude of the orbit required by the customers. The benchmark is for 1500 kg into a 700 km altitude polar orbit.

http://www.esa.int/SPECIALS/Vega/
http://tinyurl.com/vega-update (space-travel.com)

+ Xatcobeo (a collaboration of the University of Vigo and INTA, Spain) to demonstrate software-defined radio and solar panel

deployment.

+ Robusta (University of Montpellier 2, France) to test and evaluate radiation effects (low dose rate) on bipolar transistor electronic components.

+ e-st@r (Politecnico di Torino, Italy) to demonstration of an active 3-axis Attitude Determination and Control system including an inertial measurement unit.

+ Goliat (University of Bucharest, Romania) to provide imaging of the Earth surface using a digital camera and in-situ measurement of radiation dose and micrometeoroid flux.

+ PW-Sat (Warsaw University of Technology, Poland) to test a deployable atmospheric drag augmentation device for de-orbiting CubeSats. PW-Sat carries an FM to DSB amateur radio transponder with an FM input on 435.020 MHz and DSB output on 145.900 MHz.

+ MaSat-1 (Budapest University of Technology and Economics): to demonstrate various spacecraft avionics, including a power conditioning system, transceiver and on-board data handling.

+ UniCubeSat GG - (University of Rome): The UNICubeSat mission goal is the in situ measurement of atmospheric density. Downlink frequencies are 437.305 MHz or 437.345 MHz 9k6 FSK.

ESA CubeSats delivered for first Vega flight news web page:
http://www.esa.int/esaMI/Education/SEM3L0WWVUG_0.html

ESA Education - CubeSats
http://www.esa.int/esaMI/Education/SEM3N03MDAF_0.html

A picture of ALMASat-1 and the six CubeSats is posted at AMSAT-UK:
http://tinyurl.com/c8o73zw (uk.amsat.org)

Mineo Wakita, JE9PEL provides complete coverage of the Vega launch on his 'ESA CubeSats Update' web pages. You'll find an overview of each of the satellite missions, frequencies, modulation/protocols, and links to the developers home web pages posted at:
http://www.ne.jp/asahi/hamradio/je9pel/esa9cubf.htm

[ANS thanks Space-Travel.com, ESA, JE9PEL for the above information]

Opportunity for Citizen Scientists: Globe At Night Project

The GLOBE at Night program is an international campaign to raise public awareness of the impact of light pollution by inviting citizen scientists to measure their night sky brightness and to submit their observations to a website from a computer or smart phone.

The GLOBE at Night campaign has run for two weeks each winter/spring for the last six years. People in 115 countries have contributed 66,000 measurements, making GLOBE at Night one of the most successful light pollution awareness campaigns.

See http://www.globeatnight.org/ for details.

In 2012 there remain three opportunities to participate in GLOBE at Night: February 12-21, March 13-22, April 11-20.

This project consists of five Easy Star-Hunting Steps:

1) Find your latitude and longitude.
2) Find Orion, Leo or Crux by going outside more than an hour
   after sunset (about 8-10pm local time).
3) Match your nighttime sky to one of our magnitude charts.
4) Report your observation.
5) Compare your observation to thousands around the world.

Teacher Activity Packets and Family Activity Packets are available
from the website.

[ANS thanks the Globe At Night project for the above information]

Last Call for SKN on OSCAR 2012 Best Fist Nominations

Many thanks to all who participated in AMSAT's Straight Key Night on
OSCAR 2012. If you have not already done so, please take a moment to
nominate someone you worked for Best Fist. Remember, your nominee need
not have the best fist of those you heard, only of those you worked.
Send your nomination to w2rs@amsat.org.

This year's event is dedicated to the memory of Don Brown, W1JSM, who
passed away in 2011, aged 90. Don was a longtime, enthusiastic VHF/UHF
and satellite operator, and one of our most frequent Best Fist winners.

Those nominated will be recognized in an ANS bulletin in early Feb-
ruary, and in The AMSAT Journal.

[ANS thanks Ray Soifer, W2RS for the above information]

SumbandilaSat SO67 Reported Beyond Repair

The Southern Africa SA AMSAT web page (http://www.amsatsa.org.za/)
lists the current status of SumbandilaSat SO67 as, "No service all
activities suspended; Beacon is not operational."

AMSAT-UK has published the news from South African Defence Web pages
(http://www.defenceweb.co.za) in an article titled, "SumbandilaSat
beyond repair", South Africa's second satellite, SumbandilaSat, is
no longer fulfilling its main purpose due to technical problems and
is essentially beyond repair, its maker SunSpace says.

SunSpace, told defenceWeb that although contact can still be made
with the satellite, it cannot capture images and is thus "not ful-
filling its main purpose".

He said that chances of repairing the satellite are virtually zero
and that SunSpace has moved on to other projects.

SumbandilaSat was damaged during a solar storm in the June last
year. The power supply to SumbandilaSat's onboard computer stopped
working and the satellite stopped sending back images.

According to DefenceWeb, South Africa's Department of Science and

Technology (DST) is planning to launch a constellation of satellites similar to SumbandilaSat in the next 10 to 15 years. One of these will be SumbandilaSat 2, which will be larger and more reliable than its predecessor. Funding for SumbandilaSat 2 will be sought during the next financial year, starting April 1. Development will take about four years. The image processing methods and mission control systems pioneered on SumbandilaSat will be used on future satellites.

The news item at AMSAT-UK can be found at:
http://www.uk.amsat.org/4076
The news at DefenceWeb can be found at:
http://tinyurl.com/defenceweb (defenceweb.co.za)
Southern Africa SA-AMSAT web page at:
http://www.amsatsa.org.za/

[ANS thanks SA-AMSAT, AMSAT-UK, and DefenceWeb.co.za for the above information]

Satellite Shorts From All Over

+ Patrick WD9EWK/VA7EWK has posted videos of his station and operating tips about working the non-FM satellites with two radios. VO-52 with Yaesu FT-817ND transmitter, as my Kenwood TH-F6A receiver, Elk Antennas handheld 2m/70cm log periodic for antenna:
  http://www.youtube.com/watch?v=gpLw3stcxWY
  http://www.youtube.com/watch?v=4Og1P2fjmTs
  http://www.youtube.com/watch?v=K10RiIEyjfE
  AO-27 pass: http://www.youtube.com/watch?v=a0IdEPsajkU
  FO-29 pass: http://www.youtube.com/watch?v=OP80fVF9Lek

+ Watch a time-lapse video taken from the ISS as it passed above central Africa, Madagascar and the southern Indian Ocean. The night time flyover shows numerous lightning storms and the thin band of our atmosphere, with a layer of airglow above, set against a stunning backdrop of the Milky Way and a barely-visible Comet Lovejoy, http://www.youtube.com/watch?feature=player_embedded&v=GxH3Pnknhps

+ Richard Garriot has released a documentary of his trip to space. See the trailer at http://firstrunfeatures.com/intheaters.html His web site is http://firstrunfeatures.com/manonamission/

+ The article on the FUNcube satellite has now appeared in the printed publication Electronics Weekly (Jan. 25-31). For details of how to download a PDF of the article see:
  http://www.uk.amsat.org/4006

+ The ARISS monthly teleconference was held on Tuesday, January 17. Topics of discussion included the ITU notification of ARISS frequencies, an update on the Columbus module and a status report on ARISSat-1. Minutes have been posted:
  http://ariss.rac.ca/arisstel2012-01-17.htm

+ Yuri, UT1FG/MM, has been reported on the DX boards (Jan. 11-Jan. 18) to be back at sea, traveling across the Atlantic Ocean activating "Wet Grids". This may be a chance to work him via satellite if you find him within range.

+ Students working on the Aalto-1 CubeSat have released a 4 minute video showing a visualization of the launch and deployment of the satellite, see: http://www.uk.amsat.org/3883

[ANS thanks everyone for the above information]

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office. And with that, please keep in mind the planet Neptune was discovered more than 150 years ago in 1846, and since then it still has to complete an orbit around the Sun, as one Neptune year equals to 165 Earth years.

73,
This week's ANS Editor,
JoAnne Maenpaa, K9JKM